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Guidelines for authors are available at www.catsg.org/catnews

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FRANCISCO PALOMARES

Coexistence between jaguar and pumas

Mechanisms allowing for coexistence between potential competing species are not well known. Jaguars Panthera onca and pumas Puma concolor have a high potential for interspecific interference and exclusion since both species are commonly found in the same habitats and areas. We are developing a large-scale study to look deeper into the mechanisms that allow for coexistence between both species, mainly focusing on individual characteristics. We want to establish collaboration with research teams working with any of the two species.

Aggressive interactions among species, which often include the death of the victim and known as intraguild predation (IP), are an important phenomena that may change the behaviour of individuals within populations of the victim or subordinate species (i.e. the individual response), the spatial organization and density of populations (i.e. the population response), and even the structure of entire communities (i.e. the community response; Polis et al. 1989).

The existence of IP in vertebrate predators has widely been shown (Palomares & Caro 1999, Sergio & Hiraldo 2008). Recently, there has been a rapid accumulation of evidence for IP, which allows to better understand the magnitude of the phenomena, and some of its individual, population and community implications. However, we are still far from knowing the mechanisms that victim species use to allow coexistence with dominant species, or the environmental factors that may be modulating the interactions. If we want to fully understand the phenomena of IP, we must go deeply into the characteristics of individuals and environmental variables that allow or determine coexistence between dominant and subordinate species.

Since January 2011, we have been developing in the Doñana Biological Station - in collaboration with colleagues from México, Brazil and Argentina - a research project to study the role of individual characteristics to explain the coexistence of predators with a high potential for interspecific interference and exclusion, the jaguar and the puma. We aim to develop a large-scale IP study to look deeper into the mechanisms that allow for coexistence between both species, mainly focusing on individual characteristics such as sex and health condition.

Specifically, the objectives are to study 1) whether pumas show any population response to jaguar presence and abundance, 2) whether there is any bias in the sex ratio of the subordinate species in function of the population and individual status of the dominant species, 3) whether health condition of individuals of pumas and jaguars may explain coexistence between both species in some areas, 4) the individual marking patterns with faeces in relation to the individual use of space and status, and 5) finally to develop a conceptual and empiric model with possible scenarios of interference competition between both species.

For a so large-scale study of this type we will mainly use genetic analyses of faeces. Nevertheless, to correctly interpret results we first need to learn about faecal marking behaviour of both species, so we also want to use satellite radio-tracking and camera traps to study this topic.

We want to include new areas in the study by establishing collaboration with research teams working with any of the two species. We are particularly interested in areas where radio-tracking studies of jaguar or pumas, or intensive camera-trap studies are ongoing or will be carried out in the next 2-3 years. Areas where only faecal samples may be obtained are also welcome. Anybody interested in collaboration in this project, please contact me at the address below to discuss details and get more information.

References


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Puma in the Virua National Park (Roraima, Brazil).